APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/827,150	04/19/2004	Hui-Huang Chang	251806-1080	2719

24504   7590   07/13/2007
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EXAMINER
VO, QUANG N

ART UNIT	PAPER NUMBER
2625	

MAIL DATE	DELIVERY MODE
07/13/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<table>
<tr>
<td rowspan="2">Office Action Summary</td>
<td colspan="2">Application No.</td>
<td colspan="2">Applicant(s)</td>
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<tr>
<td colspan="2">10/827,150</td>
<td colspan="2">CHANG ET AL.</td>
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<td colspan="2">Examiner</td>
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<td colspan="2">Quang N. Vo</td>
<td>2625</td>
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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>19 April 2004</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-9</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-9</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Maikeru et al. (Maikeru) (Pub. No.: 06-301364) and further in view of Kouichi (Pub. No.:

11-146202).

With regard to claim 1, Maikeru discloses an error diffusion method applied to

halftone processing for image data, the image data comprising a plurality of pixels

(paragraph 0001), the method comprising the steps of: dividing the image data into a

plurality of image blocks (paragraph 0017); selecting one of the pixels belonging to each

of the image blocks as a target pixel, wherein the target pixel is located on the boundary

of the corresponding image block (paragraph 0017).

Maikeru differs from claim 1, in that he does not teach assigning a predicted error

to the target pixel; and executing the error diffusion method on the rest of the pixels of

the image blocks according to the predicted error of the target pixels of the image

blocks.

Kouichi discloses assigning a predicted error to the target pixel; and executing

the error diffusion method on the rest of the pixels of the image blocks according to the

predicted error of the target pixels of the image blocks (paragraphs 0011, 0012).

Therefore it would have been obvious to one of ordinary skill in the art at the time

of the invention to have modified Maikeru to include assigning a predicted error to the

target pixel; and executing the error diffusion method on the rest of the pixels of the

image blocks according to the predicted error of the target pixels of the image blocks as

taught by Kouichi. It would have been obvious to one of ordinary skill in the art at the

time of the invention to have modified Maikeru by the teaching of Kouichi to increase

processing speed since Maikeru and Kouichi both are parallel processing of error

diffusion.

With regard to claim 2, Kouichi discloses wherein in the step of assigning, the

predicted error is assigned to be 0 (error can be any number including 0).

With regard to claim 3, Kouichi discloses wherein in the step of assigning, the

predicted error is determined according to the error of a last pixel which is adjacent to

the target pixel, wherein the last pixel and the target pixel do not belong to the same

pixel block (paragraph 0011).

With regard to claim 4, Kouichi discloses wherein the last pixel is adjacent to the

target pixel in either a transversal or a longitudinal direction (figure 4).

With regard to claim 5, Maikeru discloses wherein the image data is divided into

the image blocks according to the location of the image blocks (paragraph 0017).

With regard to claim 6, Maikeru an error diffusion method applied to halftone

processing for image data (paragraph 0001), the error prediction method comprising the

steps of: dividing the image data into a plurality of image blocks (paragraph 0017),

wherein each of the image blocks comprises a plurality of image rows, each of which

comprises a plurality of pixels, and each of the pixels at least outputs an error

(paragraph 0017); selecting one of the pixels as a target pixel, wherein the target pixel

is located on a boundary of one of the image blocks (paragraph 0017);

Maikeru differs from claim 1, in that he does not teach assigning a predicted error

of the target pixel; and executing the error diffusion method on the rest of the rest of the

pixels of the image blocks according to the predicted error of the target pixels of the

image blocks.

Kouichi discloses assigning a predicted error to the target pixel; and executing

the error diffusion method on the rest of the pixels of the image blocks according to the

predicted error of the target pixels of the image blocks (paragraphs 0011, 0012).

Therefore it would have been obvious to one of ordinary skill in the art at the time

of the invention to have modified Maikeru to include assigning a predicted error to the

target pixel; and executing the error diffusion method on the rest of the pixels of the

image blocks according to the predicted error of the target pixels of the image blocks as

taught by Kouichi. It would have been obvious to one of ordinary skill in the art at the

time of the invention to have modified Maikeru by the teaching of Kouichi to increase

processing speed since Maikeru and Kouichi both are parallel processing of error

diffusion.

With regard to claim 7, Kouichi discloses wherein in the step of assigning, the

predicted error is assigned to be 0 (error can be any number including 0).

With regard to claim 8, Kouichi discloses wherein in the step of assigning, the

predicted error is determined according to the error of a last pixel which is adjacent to

the target pixel, wherein the last pixel and the target pixel do not belong to the same

pixel block (paragraph 0011).

With regard to claim 9, Kouichi discloses wherein the last pixel is adjacent to the

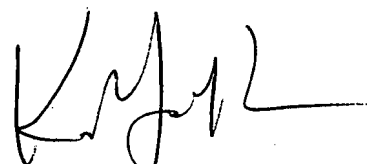target pixel in either a transversal or a longitudinal direction (figure 4).

Any inquiry concerning this communication or earlier communications from

the examiner should be directed to Quang N. Vo whose telephone number is

5712701121. The examiner can normally be reached on 7:30AM-5:00PM Monday-

Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, King Y. Poon can be reached on 5712727440. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Quang N. Vo   7/7/07

KING Y. POON
PRIMARY EXAMINER